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LASCO THINNING PROJECT

LASSEN NATIONAL FOREST

Examination
May 18,1934

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Berkeley - California
May 22, 1934

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LASCO THINNING PROJECT, LASSEN NATIONAL FOREST

Examination of May 18, 1934

Slightly more than 480 acres in Section 36, T 30 N, R 8 E was thinned by the Forest Service in the fall of 1933. Bower[1] reported under "Insect Infested" page 6, that "a pitch moth (?) was found destroying the terminal shoots on young Jeffrey pines. On some trees, as many as a dozen terminal shoots were destroyed as soon as formed, giving the tree a very stunted, widely branched appearance. This type of work was especially noticeable in the young Jeffrey pines (3 feet or under in height) in the vicinity of the railroad grades and landings. Some damage was found in the shoots at the ends of branches in larger trees on other parts of the area. The trees with the terminal shoots destroyed were removed where there were any other trees at all to take their places. A number of trees were found infested with a bark boring Buprestid and a pine weevil (Species not mentioned). These trees were removed and burned."

From the above it can be seen that, in addition to the possibility of infestation resulting from the presence of a large amount of slash insect injury of a serious nature was to be found as a normal and non-induced characteristic feature of the thinned area.

Thinning of section 1, T 29 N, R 8 E and Section 6, T 29 N, R 9 E was continued during this spring. About ten days' work had been completed by the date of examination.

Section 36 was a nearly clean cut area while the other sections, cut under Forest Service regulations contained some reserve. As is to be expected some of these reserve trees were found being killed, usually by flatheads (Melanophila spp.). The loss in the reserve was not great and cannot be considered more than normal.

Bower's report indicated that, on section 36, 64.7% of the reproduction was removed with the idea of securing spacing and liberating dominant and codominant trees. Approximately the same type of thinning had been practiced during this spring. All mistletoe trees, porcupine girdled and insect infested trees that could be replaced by others, possibly not quite as large yet more healthy, have been removed. Slash is either ponderosa or jeffrey pine. Some is nearly twelve inches diameter at the base and all has been lopped, the poles lying on the ground.

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1. Bower, Russell W., Report on the Lasco Thinning Project, Oct. 14 to Dec. 14, 1933, February 1, 1934.

INSECT CONDITIONS AT TIME OF EXAMINATION

Non-Induced Infestations.

Search was made for the insect injury mentioned by Bower. The Flathead infestation in the reserve, as mentioned above, was not greater than normal. The tip moth infestation we believe was that noted below and the weevil injury probably was caused by the same species. Many infested tips were examined, but all insect forms had emerged. However, the injury was very similar to that in lodgepole caused by Pissodes terminalis in which Magdalis hispoides was found as a minor species causing approximately the same type of injury. Similar injury to Jeffrey Pine was noted in 1931 near Black's Lake in the Lassen and, although collections of tips were made, no insects emerged. From what is known of the injury, however, it is suspected that some species of Magdalis, possibly M. lecontei or M. gentilis, is the cause. Definite proof of this is necessary.

The importance of this injury was greatly underestimated by Bower. Not only does the injury seem to be on smaller trees in the reproduction, but also is prevalent throughout the stand, and includes the dominant and codominant trees up to twenty odd feet in height. The injury to laterals is not productive of much more than crooked branches and bushy form. However, injury to the terminals is as important as that of the white pine weevil in eastern white pine in that it ruins the main bole for lumber through formation of crooks in the main stem. The fact that the injury is not confined to Jeffrey pine alone, some attacks on ponderosa pine being observed, and that similar injury was seen in the cutover along the Red Bluff highway nearly to Chester, is indicative of its distribution.

Insect injury of this type is a serious problem in timber production in other parts of the country. There has been, in the past, no consideration of such injury in this region, due to the fact that virgin stands have claimed all attention. It is felt that the incidence of primary and secondary injury caused by the insect concerned should be determined and the causal agent identified. It is planned to utilize the survey crew, sometime in July, in determining incidence of primary and secondary injury in this area, and through the cutover surveys to determine the presence or absence of the insect injury in other areas. In addition, instructions have gone out to the Hackamore laboratory to attempt to produce similar injury by caging the suspected species on reproduction.

Induced Insect Injury.

Examination of the slash cut last fall revealed that no insects entered it before winter. Ips oregoni and Pityogenes sp., however, were attacking strongly in slash of all sizes down to a 2 inch basal diameter and healthy broods were being found in practically all slash examined. No

development beyond half grown Ips larvae was seen and the majority of the material contained attacks, eggs and very young larvae. There is every evidence that, in the cut material, practically all available Ips have congregated in the slash area and appear to be successful to date.

Examination of the material cut this year showed that infestation by Ips was occurring within ten days of cutting. No other primary insects were seen in flight.

Examination of the standing material in the area thinned last fall showed a scattering of trees killed since thinning. In no case were they very abundant. Ips, apparently, was the casual agent and attacks and brood were developing normally. I say apparently, because discovery of similar attacks in areas thinned but a day revealed a group of four Ips attacked reproduction less than six feet in height and in these, as in those in the area thinned last fall, it was found that the tap and lateral roots had been attacked by a fungus that killed the cambium. Examination of trees killed before thinning started revealed the same fungus condition but that Cylindrocopturas and Flathead broods were present with no Ips attacks in any tree examined. This fungeous condition was found not only in trees attacked by Ips but also in some trees as yet unattacked by that species. D. valens was found working in the bases of some of those trees.

This fungoid injury has been brought to the attention of Forest Pathology which will attempt to culture the material and make field examinations at a later date. It is apparent that the mortality previous to thinning has been normal but has been followed by infestation of secondary insects alone. Mortality in such trees following thinning has been followed by attacks of Ips. This difference is due to the attraction of this species to the area through the presence of slash.

The occurrence of the fungoid attack in this area and the manner of attack of insects to the present time suggests that the fungus is the primary cause of death. With the presence of a primary reproduction attacking species of insect, however, it also appears that the fungus injury may be the cause of considerable loss in the thinned stands from insect attack, if the fungus is at all common.

Possibilities of attack on standing material.

It has been proven in the past that polestands in California may be subject to extensive losses through attacks of various species of Ips. It is but necessary to refer to the losses near Loyalton in 1927, the Ips outbreaks in the Stanislaus National Forest in 1924,and that inthe Sierra in 1931. Providing climatic conditions are favorable, chance of outbreaks

in many sites in California's forests are not against the insects, even without the additional impetus given by opportunities to breed in slash. Present indications are that the slash is an ideal breeding ground, although it may result in a race between the insects in completing brood development and the climate in drying out the infested material.

One of the basic conceptions of Ips outbreaks is that they occur when slashings are left during the summer season without the continuing of a supply of green material for infestation, or when the climatic factors are extremely unfavorable to tree and reproduction growth. It has been mentioned that work on this area is to be discontinued due to the fact that extreme need of thinning is not considered to exist throughout the cutover area. This action of stopping work in the middle of the season would appear to be borrowing trouble. Subsequent insect losses that, in conjunction with the weakening of trees through attacks by fungus, may wipe out the benefits expected to accrue from the thinning process through killing of the trees remaining on the area.

Berkeley, California
May 22, 1934.

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